PARKLINE MOBILE HOME PARK (PWSNO 1050020)
SOURCE WATER ASSESSMENT REPORT

March 3, 2003

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This risk assessment is based on a land use inventory in the well recharge zone, sensitivity factors associated with how the well was constructed, and aquifer characteristics.

This report, *Source Water Assessment for Parkline Mobile Home Park*, describes the public drinking water well; the well recharge zone and potential contaminant sites located inside the recharge zone boundaries. This assessment, taken into account with local knowledge and concerns, should be used as a planning tool to develop and implement appropriate protection measures for this public water system. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

Parkline Mobile Home Park is located just north of Highway 5 about 6 miles west of St Maries, Idaho. A single ground water well supplies drinking water for the park. The water system serves 19 mobile homes. A ground water susceptibility analysis DEQ conducted on December 20, 2002 ranked the well highly susceptible to contamination because of two mobile homes, a sewer line and stored vehicles within 50 feet of the well.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

Parkline Mobile Home Park was not in compliance with *Idaho Rules for Public Drinking Water Systems* when it was inspected in 1995, 2001 and 2002. The well was drilled without a prior site inspection and approval. Measurements between trailers and the well and sewer lines and the well were taken during the 2002 inspection. Separation distances between the well and trailers to the southeast and east are 26.5 and 44 feet respectively. The sewer line for the southeast trailer is 42 feet from the well. The well site geology is very protective of ground water quality; there are no major deficiencies how the well was constructed; the well produces about 30 gallons per minute and is located in an area where there are few potential sources of contamination other than those within the sanitary setback. It would make good economic sense to protect this water source by moving potential contaminants away from the wellhead.

Due to the time involved with the movement of ground water, source water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. For assistance in developing protection strategies, please contact your regional Department of Environmental Quality office or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR PARKLINE MOBILE HOME PARK

Section 1. Introduction - Basis for Assessment

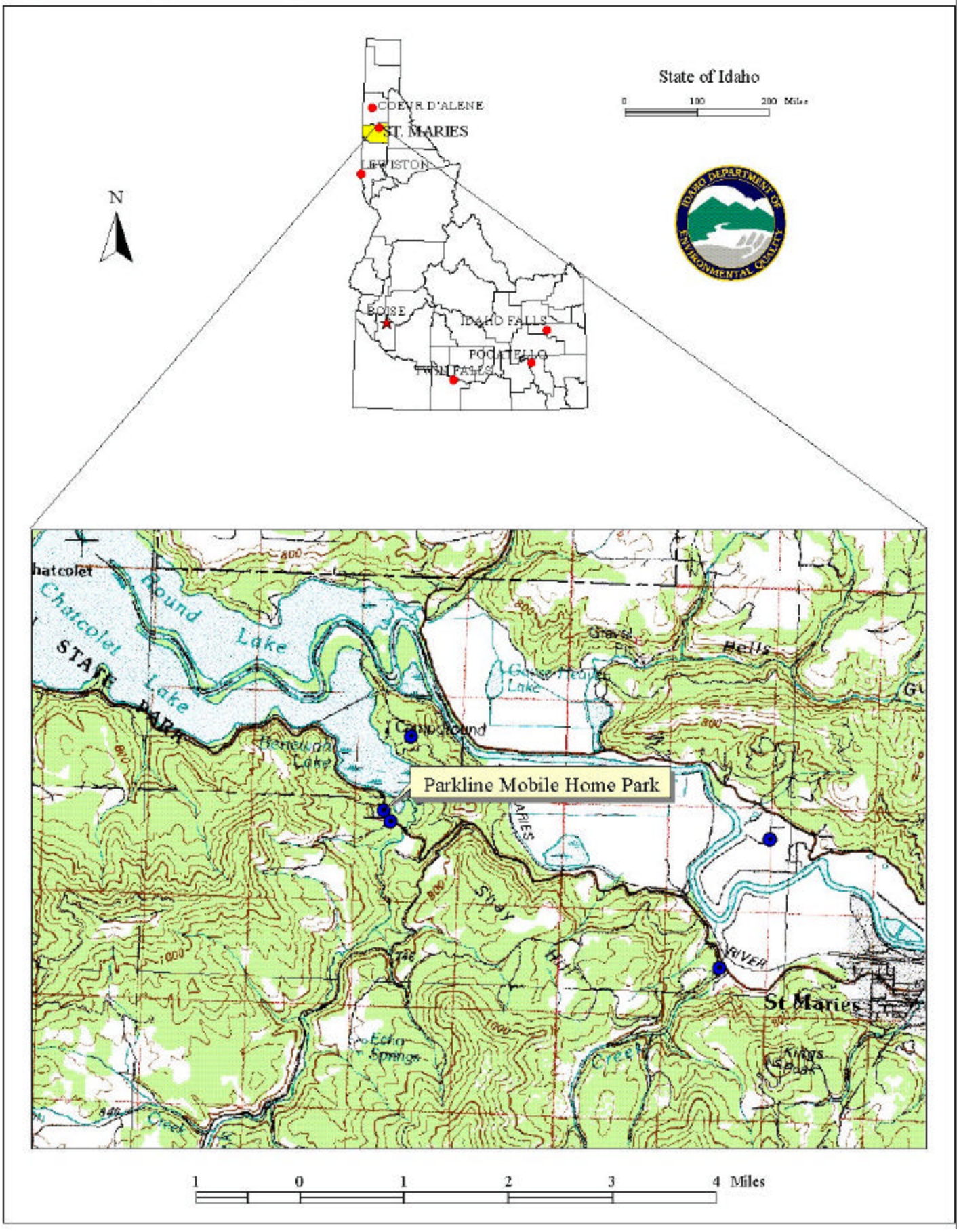
The following sections contain information necessary for understanding how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and an inventory of significant potential sources of contamination identified within that area are included. The ground water Susceptibility Analysis Worksheet used to develop this assessment is attached.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U.S. Environmental Protection Agency (EPA) to assess every public drinking water source in Idaho for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. These assessments are based on a land use inventory inside the delineated recharge zones, sensitivity factors associated with how the well is constructed, and aquifer characteristics. The state must complete more than 2900 assessments by May of 2003. Because resources and the time available to accomplish assessments are limited, an in-depth, site-specific investigation for every public water system is not possible.

The results of the source water assessment should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system. The ultimate goal of this assessment is to provide data to local communities for developing a protection strategy for their drinking water supply. The Idaho Department of Environmental Quality recognizes that pollution prevention activities generally require less time and money to implement than treating a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Wellhead or source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Figure 1. Geographic Location of Parkline Mobile Home Park



Section 2. Preparing for the Assessment

Defining the Zones of Contribution - Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the well recharge area into time of travel zones indicating the number of years necessary for a particle of water flowing through the aquifer to reach a well. DEQ used a refined computer model approved by the EPA to determine the extent of the recharge zone and to divide it into time of travel (TOT) zones. The computer model used data assimilated by DEQ from a variety of sources including local well logs.

Parkline Mobile Home Park is located between Highway 5 and Chatcolet Lake about 6 miles west of St Maries, Idaho. (Figure 1). A 214-foot deep well, that produced 30 gallons per minute when it was tested at the time of drilling, supplies water to 19 mobile home spaces.

The recharge zone delineated for the Parkline Mobile Home Park well encompasses about 475 acres divided into 0 to 3 and 3 to 6 and 6 to 10 year time of travel zones (Figure 2). The primary direction of ground water flow is from the small watershed south of the highway toward the marshy area just north of the well.

Identifying Potential Sources of Contamination

The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. Inventories for all public water systems in Idaho were conducted in two-phases. The first phase involved identifying and documenting potential contaminant sources within a system's source water assessment area through the use of computer databases and Geographic Information System maps developed by DEQ. Maps showing the delineations and tables summarizing the results of the database search were then sent to system operators for review and correction during the second or enhanced phase of the inventory process. Information from the public water system file was also incorporated into the potential contaminant inventory.

Figure 2, *Parkline Mobile Home Park Delineation and Potential Contaminant Inventory* on page 7 of this report shows the location of the well, the zone of contribution DEQ delineated for it, and potential contaminant sites in the vicinity. There is some suburban development in addition to the mobile home park paralleling the Highway in the 0-3 year time of travel zone. The remainder of the delineated area is undeveloped forest.

Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. When a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation.

Section 3. Susceptibility Analysis

The susceptibility to contamination of all ground water sources in Idaho is being assessed on the following factors:

- physical integrity of the well,
- hydrologic characteristics,
- land use characteristics, and potentially significant contaminant sources
- historic water quality

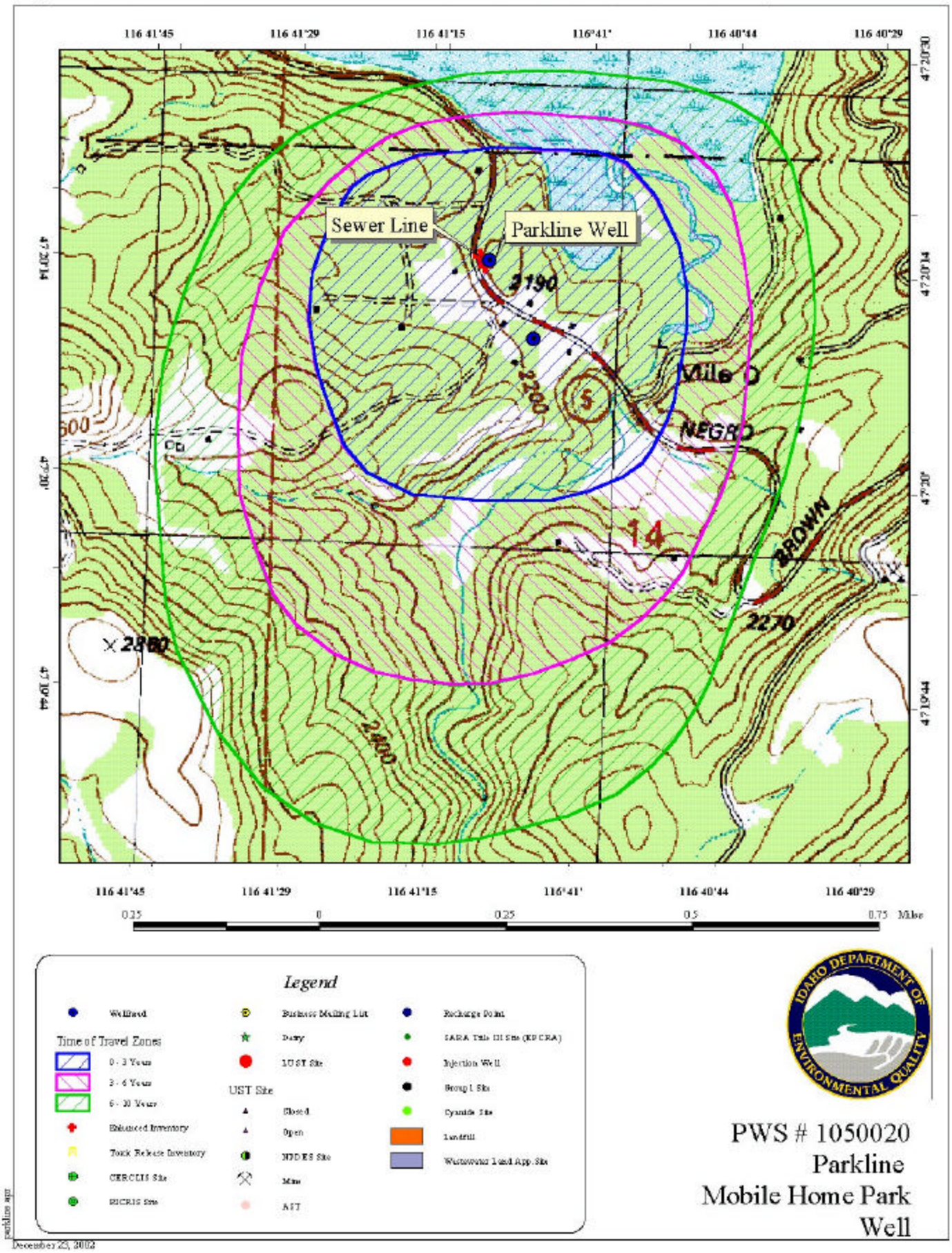
The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. A high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking. The Susceptibility Analysis Worksheet for Parkline Mobile Home Park, Attachment A, shows in detail how the well was scored.

Well Construction

Well construction directly affects the ability of the wells to protect the aquifer from contaminants. Lower scores imply a well that can better protect the water. This portion of the susceptibility analysis relies on information from individual well logs and from the most recent sanitary survey of the public water system. The driller's report for the Parkline Mobile Home Park well is on file with DEQ. The water system was not in compliance with *Idaho Rules for Public Drinking Water Systems* when it was inspected in 2002. The well was drilled in an area without an adequate well lot to provide the required separation distances between the well and potential sources of contamination.

The Parkline Mobile Home Park well was drilled in 1993. It has an 8-inch steel casing that extends from 2 feet above ground to a depth of 174 feet where it terminates in hard broken basalt. The surface seal is 60 feet deep, reaching the boundary between the deep clay bed at the surface and the underlying basalt formation. The well log reports caving from 180 to 214 feet. Static water level is 70 feet below land surface.

Figure 2. Parkline Mobile Home Park Delineation and Potential Contaminant Inventory.



Hydrologic Sensitivity

Hydrologic sensitivity scores reflect natural geologic conditions at the well site and in the recharge zone. Information for this part of the analysis is derived from individual well logs and from the soil drainage classification inside the delineation boundaries. Low scores indicate conditions that reduce the risk of contamination. The Parkline Mobile Home Park wells scored 1 point out of 6 points possible in the hydrologic sensitivity portion of the susceptibility analysis.

Soils in the recharge zone are predominately poorly to moderately well drained. Soils in these drainage classes are deemed more protective of ground water than quickly draining soils. The well is completed in a basalt formation with clay interbeds and narrow bands of fracturing. Water was first encountered in a mixed soft clay and basalt stratum 155 to 170 feet below the surface. The most productive level appears to be the broken basalt band 170 to 180 feet below ground. The continuous clay bed at the surface provides an aquitard that slows vertical transport of contaminants.

Potential Contaminant Sources and Land Use

Figure 2, *Parkline Mobile Home Park Delineation and Potential Contaminant Inventory* on page 7 shows the location of the Parkline Mobile Home Park well, and the recharge zone DEQ delineated for it. The trailer park occupies part of the 0 to 3-year time of travel nearest the well. Two mobile homes, a sewer line and stored vehicles impinge on the 50-foot sanitary setback. There is an abandoned well inside the nearby pumphouse. The stretch of Highway 5 that crosses the 0-3 year time of travel zone is a less serious concerns since it is further from the well. Chatcolet Lake submerges part of the delineated area, but the well is above the flood plain. Most of the land inside the delineation boundaries is undeveloped forest.

Historic Water Quality

Parkline Mobile Home Park has had few water quality problems other than sporadic episodes of total coliform bacteria contamination. Two instances resulted in maximum contaminant level violations. The contamination appears to have been confined to the distribution system, and was remedied by chlorinating and flushing the lines. Water quality test results are summarized on the table below.

Table 1. Parkline Mobile Home Park Chemical Sampling Results

Primary IOC Contaminants (Mandatory Tests)							
Contaminant	MCL (mg/l)	Results (mg/l)	Dates	Contaminant	MCL (mg/l)	Results (mg/l)	Dates
Antimony	0.006	*ND	3/7/95, 2/11/98	Nitrate	10	0.077 to 0.11	3/7/95 to 9/25/02
Arsenic	0.01	ND	3/7/95, 2/11/98	Nickel	N/A	ND	3/7/95, 2/11/98
Barium	2	ND	3/7/95, 2/11/98	Selenium	0.05	ND	3/7/95, 2/11/98
Beryllium	0.004	ND	3/7/95, 2/11/98	Sodium	N/A	7.8, 7.7	3/7/95, 2/11/98
Cadmium	0.005	ND	3/7/95, 2/11/98	Thallium	0.002	ND	2/11/98
Chromium	0.1	ND	3/7/95, 2/11/98	Cyanide	0.02	ND	3/7/95
Mercury	0.002	ND	3/7/95, 2/11/98, 12/5/01	Fluoride	4.0	0.27	3/7/95

Table 1. Parkline Mobile Home Park Chemical Sampling Results continued

Secondary and Other IOC Contaminants (Optional Tests)			
Contaminant	Recommended Maximum (mg/l)	Results (mg/l)	Dates
Sulfate		ND	3/7/95

Regulated and Unregulated Synthetic Organic Chemicals		
Contaminant	Results	Dates
29 Regulated and 13 Unregulated Synthetic Organic Compounds	None Detected	10/27/93, 2/13/96

Regulated and Unregulated Volatile Organic Chemicals		
Contaminant	Results	Dates
21 Regulated And 16 Unregulated Volatile Organic Compounds	None Detected	10/27/93, 2/13/96

Radiological Contaminants			
Contaminant	MCL	Results	Dates
Gross Alpha, Including Ra & U	15 pC/l	0.5, 2.2	4/26/93, 8/20/97
Gross Beta Particle Activity	4 mrem/year	1.6	4/26/93

*ND = not detected

Final Susceptibility Ranking

The Parkline Mobile Home Park well automatically ranked highly susceptible to synthetic and volatile organic chemical contamination because of vehicles stored within 50 feet of the well. The susceptibility to inorganic chemical and microbial contamination ranked high because of a sewer line 42 feet from the well. The well site geology is very protective of ground water quality; there are no major deficiencies how the well was constructed; the well produces about 30 gallons per minute and is located in an area where there are few potential sources of contamination other than those within the sanitary setback. It would make good economic sense to protect this water source by moving potential contaminants away from the wellhead.

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)
2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

The final ranking categories are as follows:

- 0 - 5 Low Susceptibility
- 6 - 12 Moderate Susceptibility
- > 13 High Susceptibility

Section 4. Options for Source Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

Maintaining and operating the well in full compliance with the *Idaho Rules for Public Drinking Water Systems* is the most important drinking water protection tool available to Parkline Mobile Home Park.

- Moving the south east trailer and its sewer line so that the sewer is at least 50 feet from the well;
- moving stored vehicles and ensuring that the 50 foot radius around the well is free from the use or storage of pesticides, herbicides and all petroleum products;
- and ensuring that the old well is abandoned properly so it does not provide a conduit into the ground water for microbial and chemical pollutants will significantly reduce the risk of the well becoming contaminated.

The system also needs to adhere to the required testing schedule. Consistent monitoring provides baseline information that can indicate developing problems before they reach the crisis stage. Cross connection control is important because surface contaminants can be siphoned into the distribution system during periods of low pressure such as may occur during a power outage.

A voluntary measure every system should implement is development of a water emergency response plan. There is a simple fill-in-the-blanks form available on the DEQ website to guide systems through the process. The park should investigate ground water stewardship programs like Home*A*Syst (on the web (www.uwex.edu/homeasyst) or by phone (608) 262-0024). These programs are designed to help well owners assess everyday activities for their potential impact on drinking water quality. Topics include petroleum product storage, septic system maintenance, handling and storing lawn and household chemicals and similar activities. Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

Assistance

Public water suppliers and users may call the following IDEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the IDEQ office for preliminary review and comments.

Coeur d'Alene Regional DEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

Website: www.deq.state.id.us/water/water1.htm

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper of the Idaho Rural Water Association (208) 343-7001for assistance with drinking water protection strategies.

References Cited

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. "Recommended Standards for Water Works."

Idaho Department of Agriculture, 1998. Unpublished Data.

Idaho Department of Environmental Quality, 1997. Design Standards for Public Drinking Water Systems. IDAPA 58.01.08.550.01.

Idaho Department of Water Resources, 1993. Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules. IDAPA 37.03.09.

Idaho Department of Environmental Quality, 2002. Coeur d'Alene Regional Office Technical Services Delineations Draft Report.

Attachment A

Parkline Mobile Home Park
Susceptibility Analysis Worksheet

Ground Water Susceptibility

Public Water System Name : **PARKLINE MOBILE HOME PARK** Source: **WELL #1**

Public Water System Number : **1050020** 12/20/02 11:54:31 AM

1. System Construction		SCORE			
Drill Date	2/6/93				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	2001			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	NO	1			
Casing and annular seal extend to low permeability unit	YES	0			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	NO	1			
Total System Construction Score		**4**			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	YES	0			
Vadose zone composed of gravel, fractured rock or unknown	NO	0			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	YES	0			
Total Hydrologic Score		**1**			
		IOC	VOC	SOC	Microbial
3. Potential Contaminant / Land Use - Close to well		Score	Score	Score	Score
Land Use	Trailer Park	2	2	2	2
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Sanitary Setback	YES	YES	YES	YES	YES
Total Potential Contaminant Source/Land Use Score Close to Well		**2**	**2**	**2**	**2**
Potential Contaminant / Land Use - 0-3 YR TOT					
Contaminant sources present (Number of Sources)	YES	1	1	1	1
(Score = # Sources X 2) 8 Points Maximum		2	2	2	2
Sources of Class II or III leacheable contaminants or Microbials	YES	1	1	1	
4 Points Maximum		1	1	1	
0-3 YR TOT contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use 0-3 YR TOT	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		**3**	**3**	**3**	**2**
Potential Contaminant / Land Use - 6 YR. TOT					
Contaminant Sources Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
Land Use 6 YR. TOT		0	0	0	
Potential Contaminant Source / Land Use Score -6 YR. TOT		**0**	**0**	**0**	**0**
Potential Contaminant / Land Use - 10 YR. TOT					
Contaminant Source Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
Do irrigated agricultural lands occupy > 50% of Zone	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score -10 YR. TOT		**0**	**0**	**0**	**0**
Cumulative Potential Contaminant / Land Use Score		**5**	**5**	**5**	**4**
4. Final Susceptibility Source Score		**6**	**6**	**6**	**7**
5. Final Well Ranking		***High**	***High**	***High**	***High**

POTENTIAL CONTAMINANT INVENTORY
List of Acronyms and Definitions

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ? Superfund? is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.